IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No.:	10/624,396	Examiner:	Sorrell, Eron J.
Filed:	July 22, 2003	Group/Art Unit:	2182
Inventor(s):	Agarwal, et al.	Atty. Dkt. No:	5760-12100
Title:	TECHNIQUE TO MONITOR APPLICATION BEHAVIOR AND TUNE REPLICATION PERFORMANCE		

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Rory D. Rankin
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March 27, 2007 — Date

PRE-APPEAL BRIEF REQUEST FOR REVIEW

Mail Stop AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request. This request is being filed with a notice of appeal. The review is requested for the reason(s) stated below.

Applicant is in receipt of the Advisory Action mailed March 15, 2007. Claims 1-2, 4, 6-10, 12, 14-18, and 20-23 remain pending in the application. Reconsideration of the present case is earnestly requested in light of the following remarks.

Claims 1, 2, 4, 6-10, 12, 14-18, and 20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Midgley et al, (U.S. Patent No. 6,625,623, hereinafter "Midgley") in view of Rubin et al. (U.S. Patent No. 5,680,573, hereinafter "Rubin"). In addition, claims 21-23 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Midgley in view of Rubin as applied to claims 1, 9, and 17, and further in view of Mashayekhi et al. (U.S. Patent No. 6,922,791, hereinafter "Mashayekhi"). The following clear errors in the Examiner's rejection are noted.

Claim 1 recites a computing system comprising:

"an application configured to initiate write transactions;

a first storage device configured to store data corresponding to said write transactions;
a memory pool; and
a replicator component configured to:
monitor said write transactions;
allocate buffers from said memory pool for said write transactions; and
automatically modify system resources in response to I/O characteristics of said monitored write transactions, wherein modifying said system resources includes modifying a size of said memory pool;
wherein said application, first storage device, and replicator are within a first node of said system, and wherein said system includes a second node with a second storage device coupled to said first node, wherein said replicator component is further configured to convey said write transactions to said second node."

Therefore, there are two nodes recited in the claim. The first node includes an application, first storage device configured to store write transaction data, and a replicator component. The replicator component is configured to monitor the write transactions, allocate buffers from a memory pool, and automatically modify system resources in response to I/O characteristics of the write transactions. In addition, the replicator component is configured to convey said write transactions to the second node.

In paragraph 3 of the Office Action December 27, 2006, the Examiner asserts that Midgley teaches:

> "a replicator component (see lines 10-52 of column 19) configured to monitor said write transactions (see lines 10-52 of column 19); and automatically modify system resources in response to I/O characteristics of said monitored write transactions ... wherein said application, first storage device, and replicator are within a first node of said system and wherein said system includes a second node with a second storage device coupled to said first node, wherein said replicator component is further configured to convey said write transactions to said second node."

However, Applicant disagrees. Midgley discloses (e.g., see Fig. 1) a system which includes a backup server 12 coupled to long term storage 14.

> "The depicted backup server **12** may also be a conventional workstation system such as a Sun Sparc workstation running a version of the UNIX operating system, or a PC compatible work station running the windows operating system or any other suitable platform.

The backup server 12 includes a number of distinct processes, including a replication process 40, a catalog process 42, and a bandwidth control process 44.

> "[T]he synchronization replication process **40** operates in cooperation with the agent processes 30 [located on file servers 18, 20, 22] to create a replica of selected files maintained within the data bases 32, 34 and 38."
>
> "The catalog process **42** can be a conventional computer process operating on the backup server 12 to collect information form the synchronization and dynamic replication processes to create a database of the different versions of the target files being stored."
>
> The bandwidth control process **44** may be used "to set a network consumption limit for each backup policy and restore operation."

Accordingly, Midgley discloses a bandwidth control process 44 that may be used to affect resources (network consumption) during backup and restore operations between file servers 18, 20, 22 and long term storage 14. A replication process 40 included in the backup server 12 performs backup and restore operations between the long term storage 14 and the file servers. The agents 30 located on the file servers monitor file accesses to databases 32, 34, 38.

The portion of Midgley cited by the examiner clearly discloses the operation of a bandwidth control process 44. More specifically, Midgley discloses:

> "[T]he back up server 12 may provide a bandwidth control process 44 that may be accessed through the console 24. In the depicted embodiment, the bandwidth control process is shown as operating on the back up server 12, however it will be apparent to those of skill in the art that *the bandwidth control process* 44 may be located on the data servers 18, 20, 22, or on both the data servers 18, 20, 22 and the back up server 12. The user may employ this process 44 to set a network consumption limit for each backup policy and restore operation. When setting this option, the user may select the bandwidth that is available between the source and backup systems, and specify a consumption limit to be allocated to the synchronization and/or dynamic replication processes. If multiple network links are available between the systems, the user may specify the slowest link. Further, the bandwidth control process 44 may include a process for determining, either dynamically, or historically, the available network resources, including network bandwidth and buffer availability, for a given time. The determined resources may be provided by the user through the console process 24, or automatically employed by the bandwidth control process 44 for selecting network consumption limits. . . .
>
> Once the consumption limit is set, the bandwidth control process 44 may throttle the bandwidth usage of the agents 30, synchronization replication

> process 40 or any replication process by limiting the amount of data to be placed on the network 10 per unit of time. To this end, the bandwidth control process 44 may calculate the bandwidth usage limit based on the maximum percentage of bandwidth the user selected for the operation and the type of network specified. Optionally, the user may vary the network bandwidth consumption for a particular policy over the course of a week. Thus a user could choose to limit consumption during the working hours and allow unlimited consumption at other times." (Midgley, column 19, lines 10-60)

As may be seen from the above, the bandwidth control process 44 is a process which "may be located on the data servers 18, 20, 22, or on both the data servers 18, 20, 22 and the back up server 12." Additionally, as clearly described above, and as shown in FIG. 1 of Midgley, the bandwidth control process 44 is distinct from the disclosed replication process 40. As noted above, "the bandwidth control process 44 may throttle the bandwidth usage of the agents 30, synchronization replication process 40 or any replication process by limiting the amount of data to be placed on the network 10 per unit of time." Therefore, the bandwidth control process 44 and replication process 40 are distinct entities which perform different functions. Claim 1 recites a replicator component configured to "monitor said write transactions; allocate buffers from said memory pool for said write transactions; and automatically modify system resources in response to I/O characteristics of said monitored write transactions." Midgley's bandwidth control process 44 does not perform the function of replication and is not equivalent to the recited replicator component.

In response to Applicant's argument that the bandwidth control process 44 does not perform replication, the examiner states in the Advisory Action that:

> "The bandwidth control process is part of the backup server . . . the backup server has a process that carries out the replication."

However, the fact that the bandwidth control process is located on a server which includes processes which performs other functions does not thereby mean the bandwidth control process performs those functions.

Additionally, the bandwidth control process 44 is not "configured to convey said write transactions to said second node," as recited in claim 1. Instead, Midgley teaches a different component that performs replication located not on the data servers or clients,

but on a backup server, namely, a "synchronization replication process 40" which may *receive* write transaction data from file servers 18, 20, 22. Therefore, not even the replication process of Midgley is configured to "convey said write transactions to said second node" from the first node.

In addition, after a careful reading of Midgley in its entirety, Applicant finds no teaching or suggestion of placing the synchronization replication process 40 anywhere but on the backup server, despite the contrary assertion by the Examiner in paragraph 12 of the office action that "Midgley further discloses the replicator can be within any of the servers 18-22." In the Advisory Action, the examiner states:

> "At lines 25-30 of column 19, Midgley discloses the process can be located on any server in the system."

However, upon review of the cited disclosure it is clear that "the process" is not the replication process 40. Rather, "the process" is the bandwidth control process 44. The cited disclosure is as follows:

> "To this end, the back up server 12 may provide a bandwidth control process **44** that may be accessed through the console 24. In the depicted embodiment, the bandwidth control process is shown as operating on the back up server 12, however it will be apparent to those of skill in the art that the bandwidth control process **44** may be located on the data servers 18, 20, 22, or on both the data servers 18, 20, 22 and the back up server 12."

Therefore, Midgley does not disclose the replication process may be located on any of the servers as suggested by the examiner.

Thus, neither does the Applicant find any teaching or suggestion in Midgley that "said application, first storage device, and replicator are within a first node of said system" as is recited in claim 1.

Accordingly, Applicant submits not all of the features of claim 1 are disclosed by the combination of cited art, and claim 1 is patentably distinct for at least the above reasons. As each of independent claims 9 and 17 include features similar to that of claim 1, each of these claims are patentably distinct for similar reasons.

In light of the foregoing remarks, Applicants submit the application is in condition for allowance, and notice to that effect is respectfully requested. If any extension of time (under 37 C.F.R. § 1.136) is necessary to prevent the above referenced application from becoming abandoned, Applicant hereby petitions for such an extension. If any fees are due, the Commissioner is authorized to charge said fees to Meyertons, Hood, Kivlin, Kowert & Goetzel PC Deposit Account No. 501505/5760-12100/RDR.

Respectfully submitted,

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